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The use of data sheets is encouraged in the unit on classification. Each student is instructed to classify types of leaves according to their similarities and dissimilarities, and then to exchange leaves with another student in order to notice if information on a new set of leaves would fit on the same data sheet. Plants are next to be classified according to their structure. Determinations are to be made as to whether structure as a classification basis is more useful than classification by life processes and environment. A special key is to be devised for plants, following the example of the key included in the guide for animals. After setting up their own systems of classification, students are requested to research to determine the method of classification used by zoologists. Research findings should be presented in acceptable form. Self-expression is encouraged on student evaluation of the Linnaeus classification. Their opinion is sought as to whether an up-to-date key would benefit working biologists today.							
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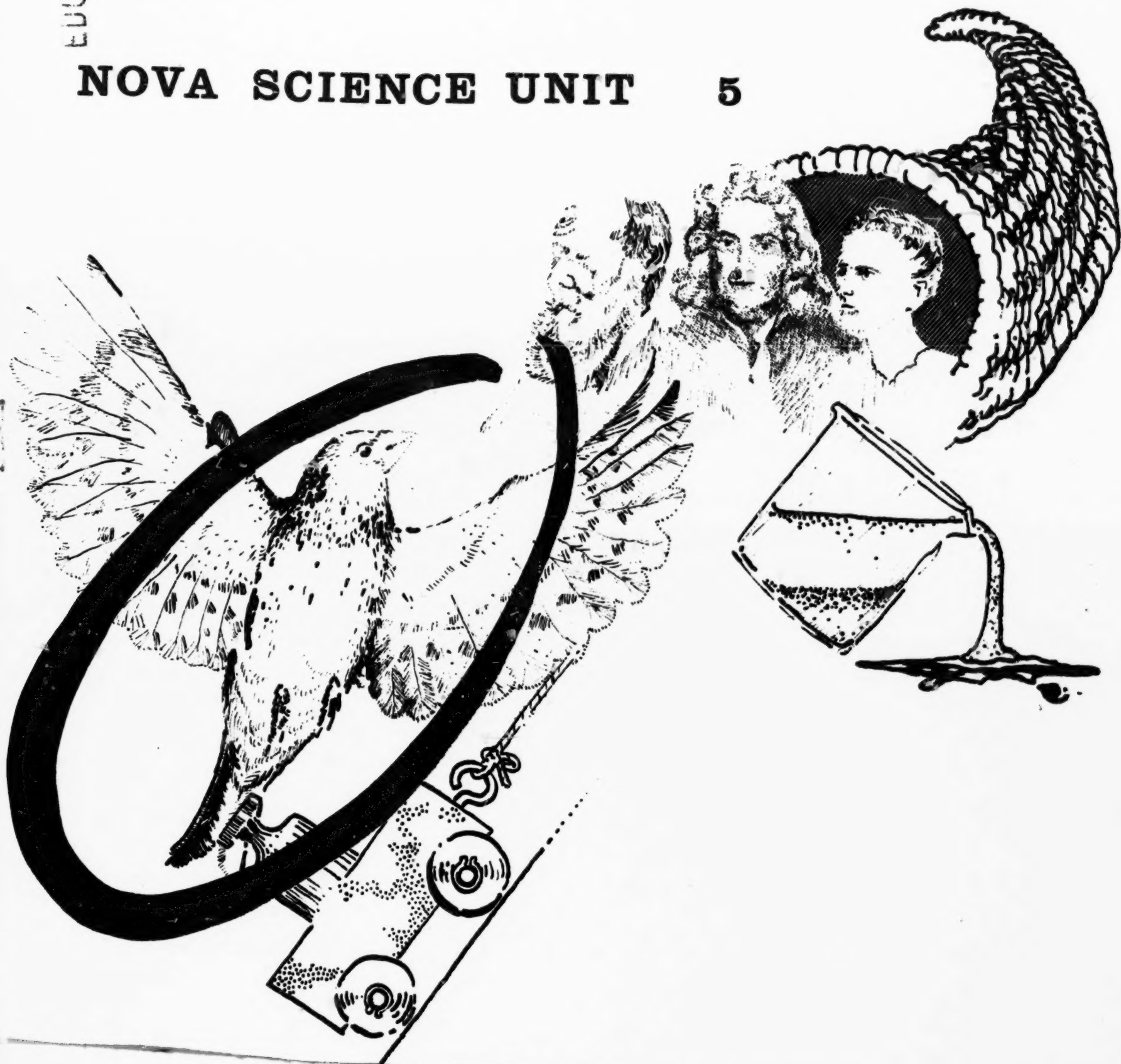
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Organization

IV

ED002311

NOVA SCIENCE UNIT 5



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Bring in 15 or 20 different types of leaves. Now lets organize or classify them according to similarities and dissimilarities..

After you have classified your leaves exchange your leaves with one of your neighbors. See if you can fit his plants on to your data sheet. You may have to make new columns on your data sheet. Did you?

When you have compiled your list compare your lists. Do you have any disagreement? If you do try and come to an agreement.

We have tried to classify and organize items in various ways. Is there any one thing that you can think of that all plants have in common? If there is, might this not make it easier for us to classify items. By the way what is this item that they have in common?

Go back and reclassify our plants according to structure. Does using structure as a basis to classify items make it easier than classifying them by life processes and environment? State some reasons for answering the above questions the way you did. Is your method of classifying foolproof? Have we taken care of every type of plant in our data sheet?

Lets try and set up a uniform way of classifying each plant according to structure. In other words we are going to try and build a key that we can use to classify plants. By the construction of this key we should be able to account for all of the plants that we know of. Does doing it this way make any sense? Why?

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Organization 5
Nova Science Unit 6

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Nova High School
Fort Lauderdale, Florida

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EXAMPLES OF KEYS

EXAMPLE 1

Kingdom Novae

- A. Legged Novae
 - B. With 2 legs -----Novatwoleggi
 - BB. With more than 2 legs
 - C. With 4 legs -----Fournovaleggi
 - CC. With 6 legs -----Legganovasixi
 - AA. Novae without legs
 - B. With fins
 - C. With 2 fins -----finfin
 - D. With scales
 - E. With sucking disk -----diskherei
 - FF. Without sucking disk ----- nodiskherei
 - DD. Without scales
 - D. With gill slits uncovered -----Barelungsi Nova
 - DD. gill slits covered -----Nova Peekeboози
 - CC. With 4 fins
 - D. With round air bladder -----Flotiballi
 - DD. With square air bladder-----Flotisquari

EXAMPLES OF KEYS

EXAMPLE 2

1. Legged Novae -----2
Novae without legs -----4
2. (1) With 2 legs -----Novatwoleggi
With more than 2 legs -----3
3. (2) With 4 legs -----Fournovaleggi
With 6 legs -----Legganovasixi
4. (1) With fins -----5
Without fins -----10
5. (4) With 2 fins -----6
With 4 fins -----8
6. (5) With scales -----7
Without scales -----9
7. (6) With sucking disk -----Diskherei
Without sucking disk -----Nodiskherei
8. (5) With round air bladder -----Flotiballi
With square air bladder -----Flotsquari
9. (6) With gill slits uncovered -----Barelungsi Nova
With gill slits covered -----Nova Peekeboози

From our previous work with plants might it not be reasonable to believe that animals may also be classified according to structure? Try and set up a key that would include all of the animals that you can think of. Be sure that you (the key will allow for additional entries) compare your keys with those of someones sitting next to you. See if you can help them improve their key. Can you? Did they help you?

If you want to pursue "keying" any further try to find another large group of animals and fit them into the key.

Now that you have set up your own system of classification lets see how it compares with the system that we are using today. What do you think this system is based on? What might some of the divisions of this system be? How do you think this system will compare with yours?

Up to now you have been doing some guesswork to try and figure out the method of classification that is used by zoologists. Now lets do some research - remember that you should have your findings in a form that can be presented to the class.

Now compare your "key" with their key that we are presently using. Are there any similarities in your organization? What are they? Do you see any ways that you might improve your key? If so what are they?

Do you think that the Linnaeus classification is the last word in classification? Do you think biologists are in complete agreement on the categories of classification? Why do we classify organisms? What immediate benefit would an up-to-date key be to a working biologist?